

Mineral Industry Surveys

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NICKEL IN OCTOBER 2004

Reported domestic consumption in October, on a daily average basis, was 12% greater than that of September, according to the U.S. Geological Survey. Daily average nickel consumption of cathode, pellets, briquets, powder, and ferronickel for stainless steel was 67.1 metric tons per day (t/d), 21% greater than the 55.5 t/d for September 2004 and 14% less than the 77.7 t/d (revised) for October 2003. Consumption of >99.8% nickel metal to make superalloys (such as INCONEL 718 and WASPALOY) increased 6% from September levels, on a daily average basis. Consumption to make corrosion-resistant, less stress-resistant nickel-base alloys (such as INCONEL 600 and Nickel 200) increased by 4% on a daily average basis. Sales to plating companies averaged 30.0 t/d, about 3% less than the September sales figure of 30.8 t/d.

On October 31, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 1,190 metric tons (t), 28% less than the 1,660 t (revised) on September 30 and 15% less than the 1,390 t reported for yearend 2003. Stocks in London Metal Exchange (LME) warehouses worldwide totaled 14,094 t on October 31, slightly less than the 14,322 t on September 30.

The United States imported 97,900 t of primary nickel in the first 9 months of 2004, 2% less than the 99,500 t for the corresponding period of 2003. Trade data for October will appear in a subsequent report.

Update: Nickel exploration in northern Quebec

More than 20 companies are actively exploring for nickel (Ni), copper (Cu), and platinum-group elements (PGE) in the Nunavik region of northern Quebec. Much of the work has focused on the Proterozoic Cape Smith fold belt, which extends northeast-southwest across the northern tip of the Ungava Peninsula. Exploration of the fold belt has accelerated since 2003 owing to high nickel prices, the continuing success of the new Raglan Mine near Katinniq, and the discovery of sulfide mineralization west of Lac Chukotat. Canadian Royalties Inc., Cascadia International Resources Inc., Goldbrook Ventures Inc., Knight Resources Ltd., and Novawest Resources Inc. are just a few of the companies that have been drilling promising pyroxenite and peridotite complexes within the belt.

Falconbridge Ltd. commissioned its Raglan Mine in the central part of the fold belt in December 1997. In 2004, Raglan produced 26,552 t of nickel in concentrate, 6% more than the 25,110 t recovered in 2003. At yearend 2003, Raglan had 17.7 million metric tons (Mt) of proven and probable reserves, averaging 2.86% Ni and 0.78% Cu. Falconbridge is currently increasing the capacity of its mill.

In 2001, Canadian Royalties optioned the Expo-Ungava property from Ungava Minerals Inc. and launched a C\$1.25 million exploration program. Later that summer, Canadian Royalties discovered the TK nickel-copper-PGE deposit south of Lac du Bombardier. Each year since 2001, the company has sharply increased its exploration funding. The expanded program, known as the Raglan South Trend Nickel Project, led to the discovery of the Mesamax deposit during the 2002 field season, and the Lac Mequillon deposit during the 2003 season. In 2003, Strathcona Minerals Services Ltd. completed initial resource estimates of the Mesamax and TK deposits for Canadian Royalties. The deposit at Lac Mequillon has an inferred resource of 1.4 Mt grading 0.7% Ni and 0.9% Cu, with PGE, gold, and cobalt credits (Whyte, 2004).

In early 2003, Knight Resources associated with Anglo American Exploration (Canada) Limited to explore a 720-square-kilometer area 90 kilometers (km) west of the Raglan property line. During the summer of 2003, Knight Resources drilled 16 holes in an area where numerous boulders with sulfide mineralization were discovered. In 2004, the company spent C\$4.4 million evaluating the 3-km by 1-km tract now known as the Greater Frontier area. An additional 60 holes were drilled during the 2004 field season, many of which intersected disseminated nickel sulfides (Knight Resources Ltd., 2004).

References Cited

- Knight Resources Ltd., 2004, West Raglan 2004 program results: Vancouver, British Columbia, Canada, Knight Resources Ltd. news release no. 08-04, 8 p.
Whyte, James, 2004, Ungava—A bright spot for nickel exploration: The Northern Miner, v. 90, no. 36, October 29–November 4, p. 1, 3.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE¹

(Metric tons, nickel content)

| Period | Cathodes, pellets, briquets, and powder | Ferronickel | Oxide-sinter, salts, and other forms | Total | Total year to date |
|---|--|-------------|---|--------|--------------------------|
| 2003: | | | | | |
| October | 4,840 | 911 | 32 | 5,780 | 51,800 |
| November | 4,470 | 1,190 | 30 | 5,690 | 57,500 |
| December | 4,130 | 902 | 30 | 5,060 | 62,500 |
| January-December | 53,500 | 8,620 | 412 | 62,500 | XX |
| 2004: | | | | | |
| January | 4,290 | 595 | 34 | 4,920 | 4,920 |
| February | 4,940 | 455 | 26 | 5,420 | 10,300 |
| March | 5,010 | 529 | 36 | 5,580 | 15,900 |
| April | 4,660 | 458 | 52 | 5,170 | 21,100 |
| May | 5,250 | 528 | 27 | 5,810 | 26,900 |
| June | 5,210 | 556 | 39 | 5,800 | 32,700 |
| July | 4,840 | 536 | 43 | 5,420 | 38,100 |
| August | 4,850 | 677 | 36 | 5,560 | 43,700 |
| September | 4,520 | 465 | 47 | 5,030 | 48,700 |
| October: | | | | | |
| Steel: | | | | | |
| Stainless and heat resisting | 1,450 | 633 | W | 2,080 | 20,100 |
| Alloy (excludes stainless) | W | -- | -- | W | W |
| Superalloys | 1,140 | -- | W | 1,140 | 9,850 |
| Copper-nickel alloys | W | -- | -- | W | W |
| Electric, magnetic, and expansion alloys | 9 | -- | -- | 9 | 111 |
| Other nickel & nickel alloys | W | -- | W | W | W |
| Cast iron | W | -- | -- | W | W |
| Electroplating (sales to platers) | 929 | -- | -- | 929 | 8,990 |
| Chemical and chemical uses | W | -- | -- | W | W |
| Other uses | 1,620 | -- | 41 | 1,660 | 15,500 |
| Total reported | 5,140 ² | 633 | 41 | 5,820 | 54,500 |
| Total all companies (calc) ³ | XX | XX | XX | 10,200 | 95,800 |
| 2004: January-October | 48,700 | 5,430 | 381 | 54,500 | XX |
| 2003: January-October | 44,900 | 6,520 | 352 | 51,800 | XX |

W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Of consumption, 4,180 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

³Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (56.93%) to apparent primary consumption for 2002.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS, BY FORM AND USE ^{1,2}

(Metric tons, nickel content)

| Period | Cathodes, pellets, briquets, and powder | Ferronickel | Oxide-sinter, salts, and other forms | Total |
|--|---|-------------|--|-------|
| 2003: | | | | |
| October | 1,360 | 109 | 60 | 1,530 |
| November | 1,410 | 227 | 59 | 1,690 |
| December | 1,390 | 260 | 46 | 1,700 |
| 2004: | | | | |
| January | 1,390 | 186 | 55 | 1,630 |
| February | 1,660 | 111 | 44 | 1,810 |
| March | 1,630 | 108 | 40 | 1,780 |
| April | 1,760 | 227 | 34 | 2,020 |
| May | 1,360 | 158 | 42 | 1,560 |
| June | 1,450 | 185 | 45 | 1,680 |
| July | 1,290 | 147 | 30 | 1,470 |
| August | 1,490 | 139 | 42 | 1,670 |
| September | 1,530 | 167 | 41 | 1,730 |
| October: | | | | |
| Steel (stainless, heat resisting and alloy) | 442 | 108 | (3) | 550 |
| Nonferrous alloys ⁴ | 732 | (3) | (3) | 732 |
| Foundry (cast irons) | (3) | (3) | -- | (3) |
| Chemical (catalysts, ceramics, plating salt, etc.) and unspecified uses | 15 | 20 | 50 | 85 |
| Total | 1,190 | 128 | 50 | 1,370 |

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustments.

³Included in the "Chemical and unspecified uses" category.

⁴Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE¹

(Metric tons, nickel content)

| Period | Consumption | | | Stocks | | |
|------------------|-------------------------------|----------------------------------|----------------|-------------------------------|----------------------------------|----------------|
| | Ferrous scrap ² | Nonferrous scrap ³ | Total scrap | Ferrous scrap ² | Nonferrous scrap ³ | Total scrap |
| 2003: | | | | | | |
| October | 5,350 | 756 | 6,110 | 3,110 | 101 | 3,210 |
| November | 4,960 | 668 | 5,620 | 2,950 | 97 | 3,050 |
| December | 4,930 | 647 | 5,580 | 2,810 | 85 | 2,900 |
| January-December | 57,600 | 8,330 | 65,900 | XX | XX | XX |
| 2004: | | | | | | |
| January | 5,050 | 698 | 5,750 | 2,700 | 73 | 2,770 |
| February | 4,780 | 708 | 5,490 | 2,710 | 79 | 2,790 |
| March | 5,520 | 937 | 6,460 | 3,270 | 80 | 3,350 |
| April | 5,280 | 865 | 6,140 | 2,950 | 82 | 3,030 |
| May | 5,210 | 801 | 6,010 | 2,730 | 63 | 2,790 |
| June | 5,090 | 804 | 5,890 | 2,750 | 85 | 2,830 |
| July | 4,850 | 675 | 5,520 | 2,640 | 76 | 2,720 |
| August | 5,010 | 952 | 5,970 | 2,410 | 74 | 2,480 |
| September | 4,390 | 809 ^r | 5,200 | 2,800 | 77 | 2,880 |
| October | 5,300 | 703 | 6,000 | 2,700 | 74 | 2,770 |
| January-October | 50,500 | 7,950 | 58,400 | XX | XX | XX |

^rRevised. XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

³Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY¹

(Metric tons, nickel content)²

| Period and country of origin | Cathodes pellets, and briquets | Powder and flakes | Ferro- nickel | Metal- lurgical- grade oxide | Waste and scrap | Stainless steel scrap | Chemicals | Total ³ | Total year to date ⁴ | Wrought nickel |
|---------------------------------|--------------------------------------|-------------------------|------------------|---------------------------------------|-----------------------|-----------------------------|-----------|--------------------|---------------------------------------|-------------------|
| 2003: | | | | | | | | | | |
| September | 9,990 | 1,030 | 1,180 | (5) | 570 | 744 | 248 | 13,800 | 107,000 | 48 |
| October | 7,270 | 565 | 1,010 | 20 | 326 | 715 | 255 | 10,200 | 118,000 | 34 |
| November | 7,030 | 625 | 932 | -- | 318 | 889 | 324 | 10,100 | 128,000 | 28 |
| December | 6,230 | 860 | 471 | (5) | 530 | 821 | 284 | 9,190 | 137,000 | 34 |
| January-December | 99,300 | 9,130 | 13,100 | 90 | 4,790 | 6,690 | 3,790 | 137,000 | XX | 660 |
| 2004: | | | | | | | | | | |
| January | 7,360 | 829 | 1,040 | 40 | 489 | 933 | 435 | 11,100 | 11,100 | 77 |
| February | 7,200 | 834 | 1,070 | 161 | 667 | 1,020 | 485 | 11,400 | 22,600 | 49 |
| March | 10,700 | 812 | 806 | 134 | 1,430 | 1,660 | 376 | 15,900 | 38,400 | 72 |
| April | 10,700 | 720 | 1,680 | 23 | 574 | 908 | 296 | 14,900 | 53,400 | 53 |
| May | 8,530 | 564 | 941 | -- | 698 | 680 | 381 | 11,800 | 65,200 | 55 |
| June | 9,190 | 732 | 978 | -- | 553 | 680 | 324 | 12,500 | 77,600 | 86 |
| July | 7,370 | 914 | 1,070 | -- | 624 | 663 | 374 | 11,000 | 88,600 | 79 |
| August | 9,770 | 800 | 1,020 | 24 | 585 | 928 | 434 | 13,600 | 102,000 | 116 |
| September: | | | | | | | | | | |
| Australia | 278 | -- | -- | 19 | 6 | -- | -- | 303 | 8,050 | -- |
| Brazil | 360 | -- | -- | -- | -- | -- | -- | 360 | 1,790 | -- |
| Canada | 4,510 | 408 | -- | 187 | 156 | 584 | 2 | 5,840 | 51,400 | (5) |
| Colombia | -- | -- | 289 | -- | -- | -- | -- | 289 | 2,480 | -- |
| Dominican Republic | -- | -- | 686 | -- | -- | -- | -- | 686 | 5,760 | -- |
| Finland | 415 | 41 | -- | -- | -- | -- | 171 | 627 | 5,150 | -- |
| France | 96 | -- | -- | -- | 128 | -- | 5 | 229 | 1,770 | 5 |
| Germany | (5) | 8 | -- | -- | 106 | -- | 31 | 145 | 1,570 | 38 |
| Japan | -- | 2 | -- | (5) | 3 | 1 | 42 | 48 | 661 | 11 |
| Mexico | -- | -- | -- | -- | 6 | 94 | 2 | 102 | 1,710 | -- |
| New Caledonia | -- | -- | 100 | -- | -- | -- | -- | 100 | 850 | -- |
| Norway | 294 | -- | -- | -- | -- | -- | -- | 294 | 10,900 | -- |
| Russia | 451 | -- | -- | -- | -- | -- | -- | 451 | 13,000 | -- |
| South Africa | -- | 60 | -- | -- | -- | -- | -- | 60 | 658 | -- |
| Sweden | -- | (5) | -- | -- | -- | -- | -- | (5) | 38 | -- |
| United Kingdom | 109 | 41 | -- | -- | 185 | -- | 8 | 343 | 2,790 | (5) |
| Venezuela | -- | -- | -- | -- | 10 | 6 | -- | 16 | 399 | -- |
| Zimbabwe | 80 | -- | -- | -- | -- | -- | -- | 80 | 661 | -- |
| Other | -- | 11 | -- | 1 | 89 | 12 | 78 | 191 | 2,780 ⁶ | 34 |
| Total | 6,590 | 571 | 1,080 | 207 | 689 | 697 | 339 | 10,200 | 112,000 | 88 |
| 2004: January-September | 77,400 | 6,770 | 9,680 | 588 | 6,310 | 8,170 | 3,450 | 112,000 | XX | 674 |
| 2003: January-September | 78,700 | 7,080 | 10,700 | 70 | 3,620 | 4,260 | 2,930 | 107,000 | XX | 562 |

XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemicals category includes chlorides (25%); sulfates (22%); other salts (22%); supported catalysts (22%); and oxide, sesquioxide, and hydroxide (65%).

³Excludes wrought nickel.

⁴May include revisions for prior months.

⁵Less than 1/2 unit.

⁶All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY¹

(Metric tons, nickel content)²

| Period and country of destination | Cathodes pellets, and briquets | Powder and flakes | Ferro-nickel | Metal-lurgical-grade oxide | Waste and scrap | Stainless steel scrap | Chemicals | Total ³ | Total year to date | Wrought nickel |
|-----------------------------------|--------------------------------|-------------------|--------------|----------------------------|-----------------|-----------------------|-----------|--------------------|--------------------|----------------|
| 2003: | | | | | | | | | | |
| September | 107 | 106 | 18 | 51 | 707 | 2,350 | 223 | 3,560 | 41,100 | 148 |
| October | 133 | 153 | 12 | 4 | 1,010 | 3,270 | 276 | 4,850 | 45,900 | 141 |
| November | 210 | 127 | 1 | 5 | 819 | 1,600 | 371 | 3,130 | 49,000 | 102 |
| December | 44 | 92 | 10 | 4 | 809 | 3,190 | 441 | 4,590 | 53,600 | 72 |
| January-December | 996 | 1,100 | 181 | 161 | 9,460 | 37,800 | 3,900 | 53,600 | XX | 2,890 |
| 2004: | | | | | | | | | | |
| January | 52 | 129 | 15 | 5 | 657 | 2,370 | 399 | 3,630 | 3,630 | 153 |
| February | 85 | 166 | -- | 17 | 540 | 2,550 | 396 | 3,750 | 7,380 | 54 |
| March | 116 | 150 | (4) | 8 | 1,000 | 3,800 | 497 | 5,570 | 12,900 | 59 |
| April | 144 | 132 | 3 | 8 | 1,070 | 2,660 | 563 | 4,570 | 17,500 | 227 |
| May | 54 | 127 | 23 | 4 | 1,290 | 3,100 | 323 | 4,920 | 22,400 | 120 |
| June | 187 | 138 | 3 | 4 | 1,310 | 4,720 | 567 | 6,930 | 29,400 | 65 |
| July | 18 | 171 | (4) | 2 | 1,160 | 2,600 | 473 | 4,420 | 33,800 | 100 |
| August | 39 | 172 | -- | 1 | 1,190 | 2,330 | 200 | 3,940 | 37,700 | 68 |
| September: | | | | | | | | | | |
| Australia | -- | (4) | -- | -- | 14 | -- | (4) | 14 | 22 | 2 |
| Belgium | -- | (4) | -- | -- | -- | 7 | 5 | 12 | 216 | -- |
| Canada | 1 | 7 | -- | 2 | 932 | 97 | 245 | 1,280 | 11,100 | 15 |
| China | -- | 89 | -- | (4) | -- | 1,210 | 1 | 1,300 | 8,020 | 2 |
| Finland | -- | -- | -- | -- | -- | 452 | (4) | 452 | 4,600 | -- |
| Germany | -- | 10 | -- | -- | 9 | 2 | 40 | 61 | 601 | 18 |
| India | -- | 11 | -- | -- | -- | 108 | (4) | 119 | 1,410 | 2 |
| Italy | -- | 1 | -- | -- | -- | 1 | -- | 2 | 68 | 3 |
| Japan | 2 | 10 | -- | 2 | 7 | 9 | 18 | 48 | 782 | 6 |
| Korea, Republic of | -- | 10 | -- | -- | -- | 270 | 6 | 286 | 5,930 | 2 |
| Mexico | 109 | 3 | -- | (4) | -- | 4 | 12 | 128 | 844 | 16 |
| Netherlands | -- | -- | -- | -- | -- | 57 | 1 | 58 | 1,050 | -- |
| South Africa | -- | (4) | -- | 1 | -- | -- | 1 | 2 | 30 | -- |
| Spain | -- | -- | -- | -- | -- | 1 | -- | 1 | 325 | -- |
| Sweden | -- | 16 | -- | -- | 32 | 3 | (4) | 51 | 286 | -- |
| Taiwan | 1 | (4) | -- | -- | -- | 212 | 4 | 217 | 2,620 | 1 |
| United Kingdom | -- | 20 | -- | 1 | 87 | 5 | 5 | 118 | 924 | 7 |
| Other | -- | 61 | -- | 1 | 91 | 178 | 160 | 491 | 3,540 | 12 |
| Total | 113 | 238 | -- | 7 | 1,170 | 2,610 | 498 | 4,640 | 42,400 | 86 |
| 2004:January-September | 809 | 1,420 | 43 | 56 | 9,380 | 26,700 | 3,920 | 42,400 | XX | 932 |
| 2003:January-September | 609 | 724 | 158 | 147 | 6,830 | 29,800 | 2,810 | 41,100 | XX | 2,570 |

XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemicals category includes chlorides (25%); sulfates (22%); other salts (22%); supported catalysts (22%); and oxide, sesquioxide, and hydroxide (65%).

³Excludes wrought nickel.

⁴Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY¹

(Metric tons, gross weight)

| Period and country of origin | Unwrought alloyed ingot | Bars, rods and profiles | Wire | Plates and sheets | Foil | Tubes and pipes | Other alloyed articles | Total | Total year to date |
|---------------------------------|-------------------------------|-------------------------------|-------|-------------------------|------|-----------------------|------------------------------|--------|--------------------------|
| 2003: | | | | | | | | | |
| September | 48 | 239 | 406 | 211 | 10 | 115 | 95 | 1,120 | 13,500 |
| October | 204 | 307 | 443 | 305 | 15 | 162 | 95 | 1,530 | 15,000 |
| November | 195 | 239 | 331 | 210 | 23 | 89 | 156 | 1,240 | 16,300 |
| December | 314 | 169 | 388 | 215 | 45 | 704 | 147 | 1,980 | 18,300 |
| January-December | 1,910 | 2,520 | 5,750 | 3,330 | 214 | 2,770 | 1,770 | 18,300 | XX |
| 2004: | | | | | | | | | |
| January | 102 | 278 | 286 | 193 | 14 | 134 | 133 | 1,140 | 1,140 |
| February | 165 | 214 | 362 | 251 | 8 | 374 | 238 | 1,610 | 2,750 |
| March | 102 | 166 | 446 | 213 | 18 | 362 | 459 | 1,770 | 4,520 |
| April | 345 | 255 | 504 | 164 | 44 | 773 | 172 | 2,260 | 6,770 |
| May | 123 | 269 | 494 | 131 | 14 | 231 | 115 | 1,380 | 8,150 |
| June | 227 | 344 | 517 | 301 | 40 | 136 | 100 | 1,660 | 9,810 |
| July | 271 | 322 | 504 | 192 | 32 | 140 | 87 | 1,550 | 11,400 |
| August | 324 | 251 | 496 | 236 | 31 | 89 | 109 | 1,540 | 12,900 |
| September: | | | | | | | | | |
| Australia | 86 | -- | -- | -- | -- | (2) | -- | 86 | 645 |
| Belgium | -- | -- | (2) | 2 | (2) | -- | (2) | 2 | 89 |
| Canada | -- | -- | 1 | -- | (2) | 22 | 1 | 24 | 149 |
| China | 12 | 3 | (2) | 1 | -- | -- | 20 | 36 | 285 |
| France | -- | (2) | 45 | 5 | -- | 12 | 2 | 64 | 1,170 |
| Germany | 87 | 106 | 209 | 171 | 30 | 58 | 1 | 662 | 5,860 |
| Italy | -- | 27 | -- | -- | -- | -- | 8 | 35 | 1,070 |
| Japan | -- | -- | 12 | 2 | -- | 3 | 1 | 18 | 586 |
| Mexico | -- | -- | -- | -- | -- | -- | 21 | 21 | 345 |
| Netherlands | -- | -- | -- | -- | -- | -- | 8 | 8 | 143 |
| South Africa | 59 | -- | -- | -- | -- | -- | -- | 59 | 300 |
| Sweden | -- | 34 | 162 | 9 | -- | 12 | -- | 217 | 2,230 |
| United Kingdom | 37 | 21 | 8 | 1 | -- | 17 | 5 | 89 | 858 |
| Other | 247 ³ | 2 | 3 | 1 | -- | 193 ⁴ | 12 | 465 | 946 |
| Total | 528 | 193 | 440 | 192 | 30 | 317 | 79 | 1,790 | 14,700 |
| 2004: January-September | 2,190 | 2,290 | 4,050 | 1,870 | 230 | 2,560 | 1,490 | 14,700 | XX |
| 2003: January-September | 1,190 | 1,810 | 4,590 | 2,600 | 131 | 1,820 | 1,370 | 13,500 | XX |

XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Less than 1/2 unit.

³Includes 59 tons from Finland and 199 tons from Norway.

⁴All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY¹

(Metric tons, gross weight)

| Period and country of destination | Unwrought alloyed ingot | Bars, rods and profiles | Wire | Plates and sheets | Foil | Tubes and pipes | Other alloyed articles | Total | Total year to date |
|--------------------------------------|-------------------------------|-------------------------------|-------|-------------------------|------|-----------------------|------------------------------|--------|--------------------------|
| 2003: | | | | | | | | | |
| September | 597 | 623 | 80 | 281 | 52 | 140 | 271 | 2,040 | 20,100 |
| October | 206 | 802 | 55 | 396 | 55 | 255 | 253 | 2,020 | 22,100 |
| November | 274 | 621 | 121 | 382 | 49 | 254 | 208 | 1,910 | 24,000 |
| December | 379 | 571 | 69 | 350 | 107 | 203 | 199 | 1,880 | 25,900 |
| January-December | 6,660 | 7,960 | 1,190 | 3,960 | 661 | 2,420 | 3,050 | 25,900 | XX |
| 2004: | | | | | | | | | |
| January | 522 | 731 | 155 | 366 | 9 | 118 | 231 | 2,130 | 2,130 |
| February | 543 | 777 | 155 | 343 | 15 | 172 | 299 | 2,300 | 4,440 |
| March | 980 | 640 | 92 | 491 | 30 | 184 | 333 | 2,750 | 7,190 |
| April | 283 | 649 | 99 | 472 | 22 | 144 | 303 | 1,970 | 9,160 |
| May | 457 | 976 | 168 | 334 | 46 | 119 | 543 | 2,640 | 11,800 |
| June | 511 | 722 | 130 | 427 | 33 | 170 | 272 | 2,270 | 14,100 |
| July | 614 | 1,100 | 177 | 350 | 11 | 132 | 244 | 2,630 | 16,700 |
| August | 629 | 760 | 176 | 234 | 10 | 123 | 221 | 2,150 | 18,800 |
| September: | | | | | | | | | |
| Australia | 26 | (2) | 2 | 23 | 1 | (2) | (2) | 52 | 243 |
| Belgium | 59 | 192 | 12 | (2) | -- | 1 | (2) | 264 | 1,830 |
| Canada | 102 | 38 | 8 | 24 | 6 | 43 | 7 | 228 | 2,120 |
| China | 6 | 34 | 4 | 35 | 1 | 5 | 52 | 137 | 873 |
| France | 114 | 211 | (2) | 30 | (2) | (2) | 1 | 356 | 2,690 |
| Germany | 17 | 86 | 8 | 12 | (2) | 5 | (2) | 128 | 923 |
| India | (2) | 1 | -- | 4 | 1 | 1 | (2) | 7 | 83 |
| Ireland | (2) | -- | (2) | 1 | -- | -- | (2) | 1 | 17 |
| Italy | 20 | 31 | 1 | 2 | -- | 1 | 5 | 60 | 821 |
| Japan | 628 | 68 | 3 | 15 | (2) | 1 | 5 | 720 | 3,000 |
| Korea, Republic of | -- | 3 | 3 | 29 | -- | 5 | 1 | 41 | 744 |
| Mexico | 2 | 23 | 81 | 19 | 2 | 23 | 113 | 263 | 2,360 |
| Netherlands | 1 | 3 | (2) | 13 | -- | (2) | 20 | 37 | 250 |
| Singapore | 1 | 23 | 1 | (2) | (2) | 2 | 1 | 28 | 122 |
| Spain | (2) | (2) | 2 | 1 | 1 | -- | (2) | 4 | 53 |
| Sweden | -- | -- | -- | 10 | -- | (2) | 1 | 11 | 129 |
| Switzerland | 13 | 7 | 5 | 1 | (2) | 5 | 1 | 32 | 222 |
| Taiwan | (2) | 13 | -- | 21 | (2) | 6 | (2) | 40 | 327 |
| United Kingdom | 15 | 286 | 9 | 53 | (2) | 12 | 4 | 379 | 3,030 |
| Other | 10 | 63 | 30 | 96 | 4 | 53 | 46 | 302 | 2,100 |
| Total | 1,010 | 1,080 | 169 | 389 | 16 | 163 | 257 | 3,090 | 21,900 |
| 2004: January-September | 5,550 | 7,440 | 1,320 | 3,410 | 191 | 1,330 | 2,700 | 21,900 | XX |
| 2003: January-September | 5,800 | 5,970 | 941 | 2,830 | 451 | 1,710 | 2,390 | 20,100 | XX |

XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

| | Percent | |
|-------------------------------------|---------|------|
| | Wrought | Cast |
| October 2004: | | |
| Stainless and heat resisting steels | 96 | 4 |
| Alloy steels | 100 | (1) |
| Superalloys | 91 | 9 |
| Copper-nickel alloys | 92 | 8 |
| Other nickel-base alloys | 100 | (1) |

¹Less than 1/2 unit.

TABLE 9
NICKEL PRICES

| Date | Platts Metals Week | | | | American Metal Market, 18/8 Stainless steel scrap Pittsburgh \$/long ton (gw) |
|--------------------------|--------------------------------|---------------------------------------|---|--|--|
| | Cathode NY Dealer \$/lb. | LME Cash mean ¹ \$/t | LME Cash mean ¹ \$/lb. | 18/8 Stainless steel scrap Free market \$/long ton (gw) | |
| 2003: | | | | | |
| Average for month of: | | | | | |
| October | 5.066 | 11,047.174 | 5.011 | 1,041 | 1,013 |
| November | 5.568 | 12,086.500 | 5.482 | 1,153 | 1,160 |
| December | 6.390 | 14,162.500 | 6.424 | 1,262 | 1,222 |
| Yearly average | 4.446 | 9,629.469 | 4.368 | 961 | 942 |
| 2004: | | | | | |
| Average for week ending: | | | | | |
| October 1 | 6.88-7.10 | 14,926.000 | 6.770 | 1,350-1,400 | 1,460-1,480 |
| October 8 | 7.42-7.70 | 16,097.000 | 7.301 | 1,400-1,500 | 1,460-1,480 |
| October 15 | 6.40-7.78 | 14,618.000 | 6.631 | 1,350-1,450 | 1,460-1,480 |
| October 22 | 6.26-6.46 | 13,422.500 | 6.088 | 1,350-1,450 | 1,460-1,480 |
| October 29 | 6.01-6.35 | 13,239.000 | 6.005 | 1,350-1,450 | 1,460-1,480 |
| November 5 | 6.35-6.73 | 13,801.500 | 6.260 | 1,475-1,525 | 1,550-1,575 |
| November 12 | 6.46-6.66 | 13,995.500 | 6.348 | 1,475-1,525 | 1,550-1,575 |
| November 19 | 6.71-6.76 | 14,261.500 | 6.469 | 1,500-1,525 | 1,550-1,575 |
| November 26 | 6.43-6.73 | 14,066.500 | 6.380 | 1,500-1,525 | 1,550-1,575 |
| Average for month of: | | | | | |
| January | 6.900 | 15,326.548 | 6.952 | 1,517 | 1,463 |
| February | 6.968 | 15,145.125 | 6.870 | 1,537 | 1,585 |
| March | 6.203 | 13,715.000 | 6.221 | 1,458 | 1,556 |
| April | 6.056 | 12,848.125 | 5.828 | 1,397 | 1,503 |
| May | 5.185 | 11,118.289 | 5.043 | 1,281 | 1,367 |
| June | 6.063 | 13,533.523 | 6.139 | 1,241 | 1,208 |
| July | 6.990 | 15,023.295 | 6.814 | 1,430 | 1,402 |
| August | 6.320 | 13,679.524 | 6.205 | 1,481 | 1,560 |
| September | 6.112 | 13,270.909 | 6.020 | 1,405 | 1,470 |
| October | 6.523 | 14,404.286 | 6.534 | 1,413 | 1,470 |
| November | 6.488 | 14,045.455 | 6.371 | 1,506 | 1,562 |

^rRevised.

¹Mean of the cash buyer price and the cash seller and settlement price.

